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Document Number 2

Entry 2 of 4

File: USPT

Jul 27, 1999

US-PAT-NO: 5930808

DOCUMENT-IDENTIFIER: US 5930808 A

TITLE: Data conversion apparatus for data communication system
 DATE-ISSUED: July 27, 1999

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FIELD-OF-SEARCH: 707/501, 707/500, 707/513, 707/516, 707/530, 707/524

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U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>5555380</u>	September 1996	Suzuki	395/853
<u>5557728</u>	September 1996	Garrett et al.	345/340

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY
0723369	July 1996	EP
997265	August 1997	JP
99160	October 1997	JP

ART-UNIT: 276

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ABSTRACT:

A data conversion apparatus is provided as a data transmitting apparatus in a data communication system which achieves pseudo interactive communications by using one-way communications between the data transmitting apparatus and a plurality of data receiving apparatuses. The data conversion apparatus converts documents stored inside into images to be displayed on the screen, such as a TV screen. In doing so, if the document includes character strings or image information as link destination information which specifies another document as a link destination, the data conversion apparatus adds a supplementary design into the image of the link destination information for the viewer to recognize such information.

27 Claims, 48 Drawing figures

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Document Number 1

Entry 1 of 4

File: USPT

Oct 26, 1999

DOCUMENT-IDENTIFIER: US 5973692 A

TITLE: System for the capture and indexing of graphical representations of files, information sources and the like

BSPR:

The present invention also provides a display layout generator for generating layouts of sets of predetermined numbers of displayable visual objects of predetermined dimensions into a display area of predetermined dimensions. According to the present invention, the display layout generator includes a possible layouts generator for receiving a display space definition defining the dimensions of the display area and a visual object definition defining the numbers and dimensions of the visual objects to be arranged in the display area and generating all possible layouts of the visual objects in the display area by placing in a layout a visual object and searching forward with a next visual object to identify a placement of the next visual object and backtracking on each next placed visual object by removing the next placed visual object and selecting and placing a different next visual object until all combinations of visual objects and placements of visual objects have been exhausted.

BSPR:

The display layout generator further includes a layout memory for storing each arrangement of the set of visual objects in the display area generated by the possible layouts generator, a layout test mechanism for testing each new layout by comparing each new layout with previously existing layouts to determine when the new layout has a subpopulation of a previously existing layout or matches a previously existing layout and when the previously existing layout has a subpopulation of the new layout, wherein a subpopulation is a subset of the visual objects, a layout previous/next selector for selecting the new layout or the previously existing layout by discarding the new layout when the new layout has a subpopulation of a previously existing layout or matches a previously existing layout and replacing the previously existing layout with the new layout when the previously existing layout has a subpopulation of the new layout, a layouts comparator for comparing pairs of layouts stored in the layout generator memory and discarding any layout that contains a subpopulation of another layout, and a layout table for storing the final layouts for use in generating visual displays of the sets of visual objects in the display areas.

BSPR:

According to the present invention, the layout generator may further include a screen map generator for receiving the display space definition and the visual object definition and generating a screen map corresponding to the defined display area and having instance locations representing possible placement locations of the visual objects in the display area, an instance pattern generator for receiving the screen map and the visual object definition and generating, for each type of visual object of the set of visual objects wherein a type of visual object is defined by the dimensions of a visual object, at least one instance

pattern representing all possible instances of locations of the visual object in the screen map, and an instance pattern enumerator for enumerating the resulting instance patterns and providing the enumerated instance patterns to the possible layouts generator to be used as initial starting points in generating layouts.

BSPR:

The layout generator may further include a screen spatial division generator connected from the possible layouts generator for receiving the display space definition and the enumerated instances patterns and dividing the defined display area into spatial divisions along axes of symmetry, a location instances sorter for sorting, for each spatial division of the display area, the enumerated instance patterns of visual objects in each spatial division by visual object type, and generating a set of location instances of visual objects for each spatial division, a location instance search and compose mechanism for searching for and generating, from the sets of location instances of visual objects for each spatial division, at least one combination of location instances in at least one spatial division wherein each combination of location instances contains a combination of visual objects of the set of visual objects, and a super-object generator for designating each combination of visual objects as a visual super-object and providing the designations to the possible layouts generator as representing corresponding visual object.

BSPR:

Finally, the layout generator may also include a screen sub-area divider connected from the possible layouts generator for receiving the display area definition and dividing the display area into sub-areas and provide to the possible layouts generator a display space definition for each sub-area for use in generating layouts for each sub-area and a screen sub-area combiner connected from the layout comparator for composing layouts for the display area by combining the layouts for the sub-areas and provide the combined layouts to the layout comparator as the layout for the defined display area.

DEPR:

In this regard, it is discussed in the following detailed descriptions of a Visual Links Automatic Capture Engine 138 that it has been found preferable, in the presently preferred embodiment, that the dimensions and aspect ratios of the Graphic Icons 144 be selected to allow efficient packing into a given display area. For these reasons, the dimensions and proportions of Graphic Icons 144 are preferably selected from a relatively small set of possible dimensions and aspect ratios to allow the efficient organization, packing and display of Graphic Icons 144 in a directory window. The method for manual selection of an area of an image to be used in generating a Graphic Icon 144 thereby preferably represents to the user not only the original image, or a section of interest thereof, and the area selected by the user for possible use in generating the Graphic Icons 144, but also the possible Graphic Icons 144 that would result from the proposed selection.

DEPR:

Finally, the image information extracted from a graphics image, which may be of various dimensions and proportions, must be shaped into a Graphic Icon 144. In this regard, however, a single fixed aspect ratio, for example, of 3:4, for either the extracted graphics information or the Graphic Icon 144 is too constraining considering the possible areas or regions that may be selected from a given graphics image as most distinctive and most unique to that graphics image, both in itself and relative to other graphics images. It is preferable, however, to efficiently organize and display the maximum number of Graphic Icons 144 in, for example, a directory window, and, for this reason, the dimensions and aspect ratios of the Graphic Icons 144 will preferably be selected to allow efficient packing of any arbitrary set of icons into a given display area. For these reasons, the dimensions and proportions of Graphic Icons 144 are preferably selected from a relatively small set of possible dimensions and aspect ratios to allow the efficient organization, packing and display of Graphic Icons 144 in a directory

window.

DEPR:

Visual Link Capture Engine 138 will therefore provide an Visual Link Capture Engine 138 that automatically shapes the extracted image information into a Graphic Icon 144 selected from a relatively small set of possible dimensions and aspect ratios that are selected for efficient packing into a display area.

DEPR:

In a related problem, Visual Links Organizer 166 will provide a mechanism for efficient packing any arbitrary collection of Graphic Icons 144 having various dimensions and aspect ratios from that set of dimensions and aspect ratios into a display area.

DEPR:

In a presently preferred embodiment of the invention, the set of possible aspect ratios for the final Graphic Icons 144 have been chosen to include aspect ratios of 6.times.2 (units of height to width), 4.times.3, 3.times.4 and 2.times.6 as these aspect ratios result in Graphic Icons 144 having the same total area and because an arbitrary group of Graphic Icons 144 having these aspect ratios will pack efficiently into a given display area. The ultimate icons will therefore be resized, according to one exemplary set of sizes, to be 120 pixels high by 40 pixels wide, or 80 pixels high by 60 pixels wide, or 60 pixels high by 80 pixels wide, or 40 pixels high by 120 pixels wide, or they may be slightly less in one or both dimensions but will be deemed nominally to "occupy" these screen display areas. Accordingly, and because the region of the original image that has been selected as visually most distinctive and unique will rarely have one of these predetermined aspect ratios, a final adjustment of the area or region of graphic information that has been selected and extracted from the original image is necessary to conform the selected area or region to one of these predetermined aspect ratios.

DEPR:

A number of such adjustment processes are possible, and the presently preferred embodiment of the Visual Link Capture Engine 138 may or does use any or any combination of these adjustment processes. For example, in a first process, the icon may be left in the shape as extracted from the original image and placed in a final display into the best-fitting shape of area, leaving blank unused area on left and right, or on top and bottom. In a second process, the icon can be distorted by a vertical or horizontal stretch so that it fits such an area and, in a third process, the area from which the icon is cut may be extended either vertically or horizontally to match an acceptable shape while, in a fourth process, a combination of stretching, of up to, perhaps, 10%, may be combined with an extension of the source area. Finally, in yet another method, and if and where a background color can automatically be discerned, that color may be used to fill the extra area so that the icon's sides do not make a disconcerting cut through other visual objects in the vicinity.

DEPR:

In all cases, therefore, the Graphic Icons 144 are produced by appropriate scaling, so that they each occupy the same amount of screen area and pack efficiently into the display screen area, such as directory window. In addition, and as discussed in the following, the Graphic Icons 144 may be but are not necessarily all created to the same color scheme, such as the 256 color standard used in Microsoft Windows, so that they can be displayed simultaneously, and in certain implementations the final color compatibility may be achieved by a color conversion just preceding the display of the icons to a user. Finally, and in addition to the above described advantages, each display of Graphic Icons 144, such as a directory or folder in the directory, will, as a whole, present a certain distinctiveness because of its near-unique combination and placement pattern of Graphic Icons 144, thereby providing the user with a further visual aid for looking for, remembering and recognizing individual Graphic Icons 144.

DEPR:

Finally in this regard, it should be noted that Visual Link Capture Engine 138 will perform a conversion of the Original Image 210 from the received color format to the chosen 256 color format before the Grayscale Image 212 is generated from the Original Image 210, so that the generation of Grayscale Images 212, and all subsequent operations, including the final generation of the Graphic Icon 144, are performed in a standard manner. As illustrated in FIG. 2A, it should also be noted that it may be desirable to display an image of the Graphic Icon 144 or potential Graphic Icons 144 during operation of Visual Link Capture Engine 138, such as in the implementation of Visual Link Capture Engine 138 used in Local Server 112 where the user is actively interacting with the system. In these applications the presently preferred implementation of Visual Link Capture Engine 138 generates and displays a temporary representation of the Graphic Icon 144 or potential Graphic Icons 144 being considered or generated to the user using the original color format of the Original Image 210, thereby avoiding the need to perform a color format conversion for a temporary display. This image or representation of the Graphic Icon 144 is not stored or saved, however, and only the 256 color format final Graphic Icon 144 is stored for later use.

DEPR:

In alternate embodiments, however, the search process may be performed with images having less or more reductions, depending upon the processing power and speed of Local System 112 or Server System 214 and the time available to process each image. It should be noted, in this regard, that the loss of quality of result appears not be significant for greater reductions in image size as the object of the search is only to identify regions of strong, bold image. Larger images are desirable, however, at least in those implementations providing the user with a display of the proposed Graphic Icon 144 areas under consideration, as providing a more legible and detailed image to the user, and the modifications to Processing Program 312, and to Find Area Program 314, to generate and use images having greater or lesser reductions will be well understood by those of ordinary skill in the relevant arts.

DEPR:

According to the present invention, Visual Links Organizer 166 provides a solution to these problems by providing a mechanism for efficient packing any arbitrary collection of Graphic Icons 144 having various dimensions and aspect ratios objects, or other visual display objects such as conventional icons or photographs of electronic mail recipients of various sizes and/or shapes into a display area.

DEPR:

As has been discussed with reference to FIG. 1A, Local System 112 includes a Visual Links Control 164 and a Visual Links Organizer 166, both of which are associated with and operate in association with Web Access Program 162, and associated with Visual Links Control 164 and Visual Links Organizer 166 is a Visual Links Library 168 for storing Visual Links 142, which include Graphic Icons 144. As discussed, Visual Links Control 164 operates to interface and integrate Visual Links 142, Visual Links Organizer 166 and Visual Link Capture Engine 138, if present, into Web Access Program 162, and allows a user to access the target of a Visual Link 142 and to save a Visual Link 142 in Visual Links Library 168 or a file. Visual Links Organizer 166, in turn, allows a user to create and edit Visual Links 142, to store Visual Links 142 in Visual Links Library 168, and to otherwise manage Visual Links 142 and Visual Links Libraries 168. Visual Links Organizer 166, which will be described in detail further below, also allows a user to organize the display of Visual Links 142 in a Visual Links Library 168, for example by displaying Graphic Icons 144 in one or more display windows or areas.

DEPR:

In this regard, Layout Generator 410 is responsive to Layout Definition Inputs 416, each including a Display Space Definition 418a containing a

specification of a selected display area, such as 12 units by 12 units, and a Visual Object Definition 418b containing a specification of the numbers, sizes and aspect ratios of visual objects to be displayed therein, for generating one or more corresponding Layouts 420 which are encoded as Plans 424, each containing a description of a layout, or organization, of the specified visual objects in the specified display space. Plans 424 are then stored in Layout Table 412, where they may be accessed by Display Generator 414 to generate a Visual Display 426 of a specified display area containing a set of identified specific Graphic Icons 144 or other visual objects conforming with the corresponding Visual Object Definition 418b as to number, size and aspect ratio.

DEPR:

Display Generator 414 is, in turn, responsive to Display Definition Inputs 428A containing a Display Space Definition 418a provided, for example, by a user or by another program operating through Visual Links Control 164 or from a Visual Link Display Memory 428B associated with Visual Links Organizer 166 for storing information relating to the display capabilities of Local System 112, and specifying the display area to be used for displaying a set of Graphic Icons 144 or other visual objects. Display Definition Inputs 428A also include a set of Visual Object Identifiers 430, such as pointers to specific Graphic Icons 144 residing in Visual Links Library 168 and identifying members of a set visual objects conforming with the corresponding Visual Object Definition 418a that are to be displayed in the defined display area. In this regard, Visual Object Identifier 430 may be provided by a user of another program or, more probably from Visual Links Display Memory 428B because a user will generally use Visual Links Organizer 166 to organize Visual Links 142 into groups of related Visual Links 142 and will store the identifications of the Visual Links 144 as groups in Visual Links Display Memory 428B. Display Generator 414 is then responsive to Display Definition Inputs 428 for indexing Layout Table 412 with Display Definition Inputs 428, reading one or more corresponding Plans 422 therefrom, and generating a Display 428 of the identified Graphic Icons 144 or other visual objects in the specified display area and according to the selected Plan 424.

DEPR:

The operation of Layout Generator 410 may be illustrated with reference to FIG. 4B, which illustrates an exemplary Layout 422 generated by Layout Generator 410. In this example, the Display Space Definition 418a specifies a display area of 12 by 12 units and Visual Object Definition 418b has specified that the visual objects to be displayed therein shall include three 6-high by 2-wide Graphic Icons 144, five 4-high by 3-wide Graphic Icons 144, two 3-high by 4-wide Graphic Icons 144, and one 2-high by 6-wide Graphic Icon 144, with 12 square units of unused space occurring in the resulting Layout 422.

DEPR:

Finally, the speed and efficiency of Layouts Generator 430 and thus of the subsequent processes described above may also be increased by additional processes primarily intended for use with large screens, for example, greater than 12.times.12. In these additional processes, Layouts 420 are composed by dividing the screen into two or more smaller screens, generating solutions for the smaller screens, and generating the solution for the original large screen by combining the solutions for the smaller screens. In this embodiment, as illustrated in FIG. 4E-5 and primarily for use with large screens, Layout Generator 410 will further include a Screen Sub-Area Divider 472 connected from Possible Layout Generator 429 which divides each screen, such as a 13.times.12 screen, into two or more smaller screens or sub-areas, for example, (n).times.12 and (13-n).times.12 wherein n=5, 6, 7. Screen Sub-Area Divider 472 then provides the smaller sub-area screens to Possible Layout Generator 429, which uses each sub-area screen independently as a display area for the generation of corresponding Layouts 420.

DEPR:

In addition to representing a document, file, location or recipient, for example, in a visual index of documents, files, locations or recipient,

a Graphic Icon 144 is a computer programming construct which permits a small bitmapped picture, that is, a Graphic Icon 144, to serve as an active button on the screen of a World Wide Web browser, electronic mail program or other application program. A user may then initiate access to the document, file, location or recipient for a corresponding purpose by "clicking" on the button. As has been described, Graphic Icons 144 enable users to more readily and easily recognize and remember a Web site, document, file, location or recipient, by providing a representative visual representation of the Web site, document, file, location or recipient, than do text indicators or, for example, ASCII string universal resource locators (URLs).

DEPV:

KeyWords 136=web browser interface icon button visual internet bitmap compression thumbnail

DEPV:

Category=browsers

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KWIC

Document Number 3

Entry 3 of 4

File: USPT

May 20, 1997

DOCUMENT-IDENTIFIER: US 5631825 A

TITLE: Operator station for manufacturing process control system

BSPR:

In carrying out the above and other objects, the operator station of the present invention includes at least one dedicated process control computer (PCC) for monitoring and controlling at least one SEQUENCE of the manufacturing process, communication means for two-way communication of process data between the operator station and the PCC, display means including information relating to one or more SEQUENCES of the process controlled by one of the PCC and display means including information relating to one or more SEQUENCES of the process controlled by a second process control computer, data input means for selecting one of the SEQUENCES controlled by one of the PCCs and another SEQUENCE controlled by a second of the PCCs, and logic for displaying information in the SEQUENCE display area corresponding to each of the selected SEQUENCES.

BSPR:

The operator station of the present invention may also include secondary display means including at least one window defining a display area including selected information relating to the manufacturing process, data input means for selecting one of the SECTIONS displayed in the first window of the first display and for selecting the information to be displayed on the second display, and logic for displaying selected information in at least one window on the second display means.

BSPR:

The display means may also further include a flowsheet display area for displaying at least one graphic sheet including a graphic representation of the portion of the process, data input means for selecting one of the graphic sheets for display in the flowsheet display means, and logic for displaying information in the flowsheet display area corresponding to a selected one of the graphic sheets.

BSPR:

The display means may also further include a trend display area including at least one graph displaying the value of a selected process primitive for a preselected period of time.

BSPR:

The operator station of the present invention also may include information displayed in the SEQUENCE display area including a SEQUENCE indicator for each SEQUENCE in a preselected one of the SECTIONS supervised by the operator station. Each SEQUENCE indicator preferably includes text identifying the SEQUENCE by name, a status indicator, a CSF indicator symbol, a Current Step Number, a Hold-in-Step indicator, an Active Acknowledged Alarm Number, a shutdown flag indicator, an emergency flag, a Min/Max alarm indicator, and an unacknowledged alarm attention indicator all as hereinafter further defined.

BSPR:

The operator station of the present invention also preferably includes

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Document Number 1

Entry 1 of 4

File: USPT

Oct 26, 1999

US-PAT-NO: 5973692

DOCUMENT-IDENTIFIER: US 5973692 A

TITLE: System for the capture and indexing of graphical representations
of files, information sources and the like
DATE-ISSUED: October 26, 1999

INVENTOR-INFORMATION:

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APPL-NO: 8/ 814118

DATE FILED: March 10, 1997

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US-CL-ISSUED: 345/348

US-CL-CURRENT: 345/348

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395/200.47, 707/104

REF-CITED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>5572643</u>	November 1996	Judson	395/200.48
<u>5642490</u>	June 1997	Morgan et al.	345/342
<u>5701451</u>	December 1997	Rogers et al.	707/1
<u>5721851</u>	February 1998	Cline et al.	345/349
<u>5724506</u>	March 1998	Cleron et al.	395/200.6
<u>5724595</u>	March 1998	Gentner	707/501
<u>5727129</u>	March 1998	Barrett et al.	707/10
<u>5737560</u>	April 1998	Yohanan	345/349
<u>5737619</u>	April 1998	Judson	707/500
<u>5740549</u>	April 1998	Reilly et al.	705/14
<u>5781189</u>	July 1998	Holleran et al.	345/335

ART-UNIT: 273

PRIMARY-EXAMINER: Kim; Matthew M.

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ATTY-AGENT-FIRM: Clapp, Esq.; G. D.

ABSTRACT:

A visual link mechanism residing in a local system for identifying

addresses of locations in the plurality of remote systems wherein the local system is connected through a network to the plurality of remote systems. The visual link mechanism includes a visual link library and a network access mechanism responsive to a visual link including a displayable graphic icon for accessing the location represented by a selected graphic icon. Various structures of visual links are described, each being an entity existing independently of the system environment in which it resides, and the network access mechanism includes a layout table for storing a plurality of plans for arranging and displaying a plurality of visual link graphic icons in a display, a visual links organizer, a visual link screen saver, and a hash protection mechanism for detecting the unauthorized construction or modification of visual links or other forms of files. Also described is a visual link capture engine for extracting graphics information from a data file and generating a corresponding graphic icon and a display layout generator for generating display layouts of sets of predetermined numbers of displayable visual objects.

16 Claims, 42 Drawing figures

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data input means for selecting one of the SEQUENCE indicators displayed in the SEQUENCE display area and logic for displaying additional numerical data corresponding to preselected parameters for that SEQUENCE. The additional preselected parameters may include the name of the current step of the SEQUENCE of the process, the time in the current step, the current recipe number, the next recipe number, the number of active shutdown alarms, the number of active emergency alarms, the number of active warning alarms, the number of active alert alarms, the number of active request alarms, the number of active digital and/or analog inputs in manual mode, and the number of digital and/or analog outputs in manual mode.

BSPR:

"Pop-up menus" are windows including lists which appear on the display when a specific graphic icon or an area of an icon is selected. For example, clicking on a common element anywhere that the element appears in the operator station display will invoke a common element pop-up menu.

BSPR:

A Main Menu is also presented upon startup, and preferably remains in a fixed location and size on the operator station's secondary display. This Main Menu contains a list of operator commands which allow the operator to create additional flowsheet windows, trend windows, event log browser windows, or to access common elements and other operator-station-supported functions.

BSPV:

Reviewing the operator station's event log of PCC system messages over a given time period, based on specified filtering criteria (in the Event Browser Window).

DRPR:

FIG. 29 is a typical Event Browser Window;

DEPR:

It should be noted that variables can be grouped. Any variable set which has been defined as a group can be displayed as a group by a procedure first initialed by clicking on a process element associated with any one of the variables in that group in a flowsheet (or anywhere it can be accessed) to invoke the relevant common element pop-up menu. Once invoked, the "Remember ID" command may be selected to store the variable temporarily as a pointer to the group. By then clicking on the color box pop-up menu 246, the "Add Group" command may be invoked to display the group relating to the temporary pointer and create new trend lines for that group of variables in the line graph 212. It will be appreciated by those skilled in the art that by assigning variables to groups, variables having close interaction or inter-dependence within the process flow, may be quickly and easily displayed to monitor a specific segment of the process.

DEPR:

Referring again to FIG. 22, the time span of the line graph 212 is preferably indicated in the time span box 230. The total time span viewed may be specified by the operator by calling a line graph pop-up menu 232 which may be activated by clicking anywhere on the graph area of the window 212. When activated, the line graph pop-up menu appears superimposed on the graph where indicated at 234. The line graph pop-up menu 232 preferably provides options for manipulating the display format for the graph area.

DEPR:

Other trend window commands are preferably included in a line graph pop-up menu 232 which may be invoked by clicking anywhere in the graph area of the line graph 212, and appears superimposed over the line graph 212 at, for example, 234. The line graph pop-up menu 232 includes commands useful in manipulating the display format for the selected graph area. The menu may include a "Time Span" command which sets the magnitude of the time span for the line graph 212; this time span is

indicated in the time span box 230. The menu further includes a "Set Display Time" command which sets the start point display time for all of the trend lines in the line graph 212; this start point is indicated at 238. It will be appreciated by those skilled in the art that these two commands can be used in combination to effectively define the display time range to display the trend line of the PCC variable for a selected historical period having both the beginning time and ending time prior to the current time. This menu also typically includes a "Glossaries" command which provides a one-line glossary for each of the trended variables in a displayed set. Another command preferably included on the line graph pop-up menu 232 is "Grid." When selected, "Grid" cascades to another menu which provides an option to display or not to display the T-axis and/or Y-axis grid lines on the line graph 212.

DEPR:

In the preferred embodiment of the operator station 20 of the present invention, AME information is presented to the operator via six windows. There are four windows that display information relating to Alarm/Manual Variables--the Unacknowledged Alarm Overview Window (FIG. 25), the Active Alarms Window (FIG. 26), the Elements-In-Manual Window (FIG. 27, and the Alarm Grid Flowsheet Window (FIG. 28). There are preferably at least two windows that display Event information--the Event Browser Window (FIG. 29), and the Real-Time Event Capture Window (FIG. 30).

DEPR:

Referring now to FIG. 29, the operator station 20 of the present invention also preferably includes an Event Browser Window 286 which allows the operator to browse through a history of various events that have occurred in the process monitored by the operator station 20 within a preselected time period, such as the last 24 hours. An Event Browser Window 286 maintains an event log list including all incoming events. The events are listed in chronological order as they have occurred with most recent events depicted at the bottom of the event log file displayed in the event log box 288. In the preferred embodiment, more than one Event Browser Window 280 can be created. The window preferably appears on the secondary display 28 and can be moved, shrunk, covered by other windows, or closed by the operator. The Event Browser Window 286 displays only a historical log; it does not capture new events as they occur. Filtering is preferably provided to permit a selected view into the event log file. In addition, the operator is allowed to specify a starting time and stopping time defining the extent of the historical record displayed in the window. As with the other AME information windows, scroll bars 278 may be provided to allow for viewing of an event log that is larger in size than the event log box 288.

DEPR:

The Event Browser Window 286 preferably also includes a View menu which may be activated via the menu bar 290. When activated, the View menu provides access to the "Filter Criteria" command which, when activated, displays a filtering dialog box which can, in turn, be utilized to implement the filtering as described above. Based upon the event categories chosen during filtering, the following types of event information can be presented in, or excluded from, the Event Browser Window 286:

DEPR:

As with the other AME windows, filtering may be turned on or turned off via radio buttons 292, 294 provided in the Event Browser Window 286.

DEPR:

The Event Browser Window 286 initially appears empty on the secondary display 28. The operator is then prompted to choose a time range for event after which an unfiltered events log file for that time range is created and displayed.

DEPR:

Referring now to FIG. 30, the operator station 20 of the present invention also preferably includes a Real-Time Event Capture Window 296 which displays some (if filtered) or all of the events as the occurrence

of these events is transmitted from the PCCs to the operator station 20. As with the Event Browser Window 286, the events are listed in an Event Capture List Box 298 provided with scroll bars 278 to allow viewing of a list greater in size than the Event Capture List Box 298. Also, as with the Event Browser Window 286, more than one Real-Time Event Capture Window 296 may be created, and the window(s) may be moved, resized, shrunk to an icon, covered by other windows, or closed by the operator. Unlike the Event Browser Window 286, the Real-Time Event Capture Window 296 does not display historical data. Events are displayed as the information is received by the operator station 20 from the PCC, with the most recent event preferably appearing at the bottom of the window. As with the Event Browser Window 286, no sorting is allowed in this window. Filtering is provided to allow the operator to select a subset of events in real-time via the filter dialog box invoked by activating the View menu from the menu bar 300 in the same manner described above in connection with the Event Browser Window 286.

DEPV:

The "Event Browser" command creates a new Event Browser Window on the secondary display 28.

CLPR:

2. The operator station of claim 1 wherein the display means further includes a window defining a flowsheet display area including at least one flowsheet including a graphic representation of a portion of the process.

CLPR:

3. The operator station of claim 1 wherein the display means further includes a window defining a trend display area including at least one graph displaying the value of at least one selected process variable for a preselected period of time.

CLPV:

a data input device for selecting one of the SECTIONS displayed in the SECTION display area; and

CLPV:

logic for displaying information in the SEQUENCE display area corresponding to all of the SEQUENCES in the selected SECTION of the process.

CLPV:

a data input device for selecting one of the SECTIONS displayed in the SECTION display area; and

CLPV:

logic for displaying information in the SEQUENCE display area corresponding to all of the SEQUENCES in the selected SECTION of the process.

CLPV:

a data input device for selecting one of the SECTIONS displayed in the SECTION display area; and

CLPV:

logic for displaying information in the SEQUENCE display area corresponding to all of the SEQUENCES in the selected SECTION of the process.

CLPV:

data input means for selecting one of the SEQUENCE indicators displayed in the SEQUENCE display area, and

CLPV:

a data input device for selecting one of the SECTIONS displayed in the SECTION display area; and

CLPV:

logic for displaying information in the SEQUENCE display area corresponding to all of the SEQUENCES in the selected SECTION of the process.

CLPV:

a second window defining a display area for displaying information relating to one or more SEQUENCES of the process;

CLPV:

a second window defining a display area for displaying information relating to one or more SEQUENCES of the process;

CLPW:

a first window defining a display area including at least one infological object which is a composite derived from selected parameters associated with a SECTION, and

CLPW:

a second window defining a display area including at least one infological object which is a composite derived from selected parameters associated with a SEQUENCE.

CLPW:

a SECTION display area including information relating to at least one of the SECTIONS of the process, the information including a SECTION indicator for at least one of the SECTIONS supervised by the operator station, the SECTION indicator comprising text identifying the SECTION by name and graphic indicia of the overall success of the SECTION, the graphic indicia including a circle divided into two contrasting shades forming a pie chart wherein the area of one of the shades varies in size as a function of the current condition of operation of the SECTION, and a radial line segment that indicates the trailing average of the condition of operation of the SECTION, and

CLPW:

a SEQUENCE display area including information relating to one or more SEQUENCES of the process;

CLPW:

a SECTION display area including information relating to each of one or more SECTIONS of the process, the information including a SECTION indicator for each SECTION supervised by the operator station, the SECTION indicator comprising a text identifying the SECTION by name, graphic indicia representing the critical success factor symbol, graphic indicia representing the status of selected shutdown flags in the SECTION, graphic indicia representing the status of selected emergency flags in the SECTION, graphic indicia representing the status of selected alarms, and

CLPW:

a SEQUENCE display area including information relating to one or more SEQUENCES of the process;

CLPW:

a SECTION display area including information relating to at least one of the SECTIONS of the process, and

CLPW:

a SEQUENCE display area including information relating to one or more SEQUENCES of the process, the information including a SEQUENCE indicator for at least one of the SEQUENCES supervised by the operator station, the SEQUENCE indicator comprising text identifying the SEQUENCE by name and graphic indicia of the overall success of the SEQUENCE, the graphic indicia including a circle divided into two contrasting shades forming a pie chart wherein the area of one of the shades varies in size as a function of the current condition of operation of the SEQUENCE, and a radial line segment that indicates the trailing average of the condition of operation of the SEQUENCE;

CLPW:

a SECTION display area including information relating to at least one of the SECTIONS of the process, and

CLPW:

a SEQUENCE display area including information relating to at least one of the SEQUENCES of the process, the information including a SEQUENCE indicator for each SEQUENCE in a preselected one of the SECTIONS supervised by the operator station, the SEQUENCE indicator comprising text identifying the SEQUENCE by name, a status box symbol, a critical success factor indicator symbol, a shutdown flag symbol, an emergency flag symbol, a Min/Max alarm symbol, and an unacknowledged alarm attention symbol;

CLPW:

a first window defining a display area including information relating to at least one SECTION of the process, and wherein said information includes a SECTION indicator for at least one of the SECTIONS supervised by the operator station, the SECTION indicator comprising text identifying the SECTION by name and graphic indicia of the critical success factor representing overall success of the SECTION, the graphic indicia including a circle divided into two contrasting shades forming a pie chart wherein one of the shades defines a pie chart portion which varies in size as a function of the current value of the critical success factor, and a radial line segment that indicates the trailing average of the critical success factor;

CLPW:

a first window defining a display area including information relating to at least one SECTION of the process, the information including a SECTION indicator for each SECTION supervised by the operator station, the SECTION indicator comprising text identifying the SECTION by name, a status box symbol, a critical success factor indicator symbol, a shutdown flag symbol, an emergency flag symbol, a Min/Max alarm symbol, and an unacknowledged alarm attention symbol, and

CLPW:

a first window defining a display area including information relating to at least one SECTION of the process;

CLPW:

a second window defining a display area for displaying information relating to one or more SEQUENCES of the process, and wherein the information includes a SEQUENCE indicator for at least one of the SEQUENCES supervised by the operator station, the SEQUENCE indicator comprising text identifying the SEQUENCE by name and graphic indicia of the critical success factor representing overall success of the SEQUENCE, the graphic indicia including a circle divided into two contrasting shades forming a pie chart wherein one of the shades varies in size as a function of the current value of the critical success factor, and a radial line segment that indicates the trailing average of the critical success factor;

CLPW:

a first window defining a display area including information relating to at least one SECTION of the process;

CLPW:

a second window defining a display area for displaying information relating to one or more SEQUENCES of the process, the information including a SEQUENCE indicator for each SEQUENCE in a selected SECTION supervised by the operator station, the SEQUENCE indicator comprising text identifying the SEQUENCE by name, a status box symbol, a critical success factor indicator symbol, a shutdown flag symbol, an emergency flag symbol, a Min/Max alarm symbol, and an unacknowledged alarm attention symbol;

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Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWC	

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[illegible]

DRPR:
FIG. 26 shows the image of FIG. 23 displayed on the display screen by using a conventional WWW browser;

DEPR: `TOKYO` on line 319 of FIG. 3 indicates that the character string "TOKYO" is linked to the HTML document 501 "Tokyo.html" which is shown in FIG. 5. Here, character strings or images which are linked to other files, such as this character string "TOKYO", are called hot spots or anchor points. As one example, if a user uses the mouse to select the hot spot "TOKYO" which displayed on a computer monitor by a browser, the HTML document 501 "Tokyo.html" will be read by the browser and is displayed on the screen. Here, the attribute of tag """, "HREF=", represents a link destination, and the attribute content of "HREF=", in this case "Tokyo.html", indicates a file name for the link destination file.

DEPR:

The transmission data generating unit 112 assigns a same identification number to the display image information storage area, the audio information storage area, and the link information storage area used for storing the corresponding kinds of information in a same transmission data file. Here, the transmission data generating unit 112 manages the audio information and link information in a same transmission data file as separate files which are given the same identification number. This identification number may correspond to the serial number in column 201 of the file list, which in turn corresponds to the file names of the present files which are given in column 203.

DEPR:

For tags which are not "", "<math>", or "<math>", the transmission data generating unit 112 sets a flag showing the interpreted control operation in the flag storage area provided in the work area and stores the character strings between the start tag "" and the corresponding end tag "" into the character string storage area in the work area so as to correspond to the set flag. The storage of character strings between a pair of corresponding tags is performed in the same way as the storage of the character strings included inside the tags themselves. The transmission data generating unit 112 converts the character strings in the character string storage area into text image using the fonts in one of the font files and arranges the text image in accordance with the control operation represented by the current flag to generate display image information. This generated display image information is then added to the display image information storage area provided in the transmission data holding unit 113. Here, when a start tag "" is followed, not by a character string, but by another start tag "", a flag is first set for the former tag in the flag storage area, before the processing is performed for the control operation indicated by the latter tag.

DEPR:

If, for example, the file name extension is ".gif", the transmission data generating unit 112 decompresses the image information file under GIF to convert the image information file into the appropriate format. If a preceding flag is set for a control operation to be performed on the converted image, the converted image is arranged in accordance with this control operation to generate display image information, otherwise the display image information is generated with the converted image being arranged in accordance with an initial setting. This generated display image information is then added to the display image information storage area.

DEPR:

If the link destination file is not an audio file, the transmission data generating unit 112 generates a text image for the character string between tags and , and arranges the text image at a display position indicated by a preceding flag, or alternatively at a display position specified by an initial setting, with a space being reserved for displaying a cursor. By doing so, the transmission data generating unit 112 generates display image information which is then added to the display image information storage area provided in the transmission data holding unit 113. The transmission data generating unit 112 then calculates the X-Y coordinates for the space reserved for the cursor display position and refers to the hot spot information 702 in the link information table 700 to generate hot spot information from the calculated X-Y coordinates and the "link destination file name" specified by the attribute "HREF=" of tag "<a>". In doing so, the transmission data generating unit 112 refers to the file list 200 and finds the serial number 201 corresponding to the file name in column 203 which in turn corresponds to the link destination file name of tag "<a>", before writing this serial number 201 into the hot spot information as the file identification number. If the link destination file name is not present in the file list 200, the transmission data generating unit 112 writes the file name of the current file into the hot spot information. After doing so, the transmission data generating unit 112 adds the generated hot spot information to the link information storage area provided in the transmission data holding unit 113.

DEPR:

After completing all of the above processes for an HTML document, the transmission data generating unit 112 writes a graphic representation of the identification number of the display image information area at a predetermined position in the non-displayed area of the display image information stored in the display image information area. In the present embodiment, the identification number has been described as being a four-figure decimal value, although the number of decimal digits is not

limited to four. The identification number may alternatively be represented in binary notation, as a combination of numerals, characters and symbols, as a graphical figure, as a bar code, or even as a file name. Here, the audio information stored in the audio information storage area and the link information stored in the link information storage area are also appended with the identification numbers of the corresponding storage areas, in the same way as with standard digital data files.

DEPR:

Next, the transmission data generating unit 112 reads the tag "

" on line 312 and refers to the tag table to interpret its content. On doing so, it sets the headline flag in the flag storage area in the work area. Here, the headline flag shows that the character string following the "

" tag is a headline and so should be displayed using a headline font. The characters in the character string after the "

" tag are then written one character at a time into the character string storage area until the "

" tag appears, which in the present case results in the character string "WEATHER REPORT" being written into the character string storage area and being converted into display image

information using the headline font.
This generated display image information is then added to the display image information storage area set in the transmission data holding unit 113.
After this, the headline flag in the work area is reset, the character string "WEATHER REPORT" is deleted from the character string storage area, and the character string "H1" is deleted from the tag storage area.

DEPR:

The transmission data generating unit 112 then reads the tag "
" on line 315 and arranges the bitmap image converted from image information 401 in accordance with the centering flag set in the work area. The display image information thus generated is then added to the display image information storage area in the transmission data holding unit 113, before the centering flag in the work area is reset.

DEPR:

The transmission data generating unit 112 then reads the "

" tag on line 316 and sets the paragraph flag. The paragraph flag shows that the character strings displayed between this start tag and the

display image information to the storage area in the transmission data holding unit 113 for display image information storage area 801. After this, the content of the work area is cleared as before.

DEPR:

When the extension of the file name given as the attribute of the "" tag indicates audio information, the link flag shows that processing for the audio information is to be performed so that the audio information is converted into a predetermined format and stored in the audio information storage area. When the extension of the file name given as the attribute of the "" tag does not indicate audio information, the link flag

shows that the character string between the "" and "" tags which is appended with the link by the "" tags is to be converted into an image with a two-character space provided before it as a cursor display area. The link flag also shows that display image information is to be generated for this character string in addition to hot spot information which is generated in accordance with the format of the hot spot information 702.

DEPR:

The transmission data generating unit 112 reads the character string "TOKYO" between the "display area" and arranges the character string in accordance with the itemized list flag to generate display image information which it adds to the display image information storage area provided in the transmission data holding unit 113. The transmission data generating unit 112 then calculates the coordinates of the

cursor display position as (100,600), and uses these coordinates and the attribute "Tokyo.html" stored in the tag storage area of the work area to generate the hot spot information shown on line 812 of FIG. 8. After doing so, the transmission data generating unit 112 adds the generated hot spot information to the link information storage area provided in the transmission data holding unit 113. Having done so, the transmission data generating unit 112 deletes the character string "A HREF="Tokyo.html" in the tag storage area of the work area and the character string "TOKYO" in the character string storage area, in addition to resetting the link flag.

DEPR:

Next, on reading the "" tag on line 320, the transmission data generating unit 112 shifts the display position for the next display image to the following line in accordance with the item flag, and, in

the same way as with line 319, generates display image information for the character string "OSAKA", in addition to generating the hot spot information shown on line 813 of FIG. 8C. The generated display image information is then added to the display image information storage area provided in the transmission data holding unit 113 and the generated hot spot information is added to the link information storage area. After this, the transmission data generating unit 112 deletes the character string "A HREF="Osaka.html" and the character string "OSAKA", and resets the link flag.

DEPR:

Following this, the transmission data generating unit 112 finds that there is an unprocessed HTML document 501 and so sets a display image information storage area for display image information 901 and a link information storage area for link information 902 in

the transmission data holding unit 113 for storing the composite parts of the transmission data 900, in doing so giving both storage areas the identification number "0002" for the retrieval of the transmission data 900. It then reads the unprocessed HTML document 501 from the buffer of the information obtaining unit 111 and writes it into the work area.

DEPR:

The display image information storing unit 123 can be realized by RAM (Random Access Memory) or a hard disk device, and is provided with a plurality of display image information storage areas which are set by the transmission data generating unit 112. Each of these display image information storage areas stores one file of display image information which is generated by the transmission data generating unit 112.

DEPR:

"L1-Ln" are private sections according to MPEG2 standard for attaching each set of link information, with the PID "0.times.B0" having been attached to identify these as private sections. Here, identification numbers are also set in the table ID extensions to identify separate sets of link information. Each of these sets of link information is set with at least one pairing of one part of the image area of the corresponding display image and information showing a link to another display image. As one example, in "L1", the display area centered on the coordinates (X,Y)=(100,600) is set with the link "GOTO.sub.-- PAGE(0002)" representing a link to the display image with the identification number "0002", while the display area centered on the coordinates (X,Y)=(100,700) is set with the link "GOTO.sub.-- PAGE(0003)" representing a link to the display image with the identification number "0003".

DEPR:

A variety of tags can be employed in the HTML documents, and the processes represented by these tags can be performed in the same way as a conventional browser. Accordingly, the following explanation focuses on an example of the processing in step S1312 for the tag "" which relates to the link information which generated in a special format for this data communication system 100.

DEPR:

If the read tag is "", the transmission data generating unit 112 judges whether the link destination file specified by the attribute is an audio information file (step S1402). If it is, the processing advances to step S1407, or if not, the transmission data generating unit 112 generates display image information for the character string established in the character string storage area, in doing so leaving a display area for displaying a

cursor design, before adding the generated display image information to the display image information storage area provided in the transmission data holding unit 113 (step S1403).

DEPR:

The separating unit 151 separates display image information (including audio information) and link information from the received transmission data, and stores the separated display image information and link information in the corresponding storage areas of the read buffer 161. The identification number assigned to the display image information stored in the storage area is read by recognizing the image written in the predetermined part of the non-displayed area of the display image information. The identification number assigned to the link information is read in the same manner as when reading an identification number assigned to a conventional digital data file. If the read

identification number is the identification number designated by the control unit 155, the display image information (including audio information) or the link information held by the read buffer 161 is stored in the corresponding storage area in the received data holding unit 152. At this point, any audio information which is present is stored by the separating unit 151 in a corresponding storage area provided in the received data holding unit 152 at the same time as the display image information is stored, so that the audio information is gradually accumulated while the display image information with the identification number designated by the control unit 155 is repetitively transmitted. By doing so, audio information which is transmitted across a plurality of frames can be separated from the transmission data.

DEPR:

The present embodiment describes the case when in order to display WWW home pages on the Internet, the data communication system 100 uses a one-to-many TV broadcast to perform simulated bidirectional communication, so that when compared to the case when home pages are displayed by a browser on a personal computer, the display of the user's desired pages on the display unit 154 can be performed at a high speed which is unaffected by congestion. Since display image information is sent in a conventional TV format, the display of full color, high-resolution images can easily be achieved by the display unit 154. Also, while the display of display images generated by a browser for display on a TV monitor does not make full use of the components, such as the reproduction processing for display images, conventionally provided inside a TV, the present embodiment can achieve simulated bidirectional communication which makes full use of circuitry, such

as memory and decoders, conventionally provided inside a TV set.

DEPR:

HTML documents 2301 and 2401 and image 2501 are not described here since they have already been described in the first embodiment. FIGS. 26 and 27 show HTML document 2301 and image 2501 displayed by a conventional WWW browser on display screen 2601 of a personal computer having a resolution of 640.times.480 dots (pixels). Document 2301 is displayed as an image over two screens, namely consecutive display images 2602 and 2701. The two display images can be scrolled in the vertical direction by operating on scroll buttons 2603 and 2604 which are respectively displayed on the upper-right and lower-right corners of the screen.

DEPR:

Image generating unit 3502 judges whether the value of counter M, which is

sent from link information generating unit 3503, matches the value of k in apparatus information storing unit 3501. When they match, image generating unit 3502 writes the corresponding cursor design and the display element into temporary information storage unit 2208, then instructs controlling unit 2205 to write the cursor design and the display element into transmission data holding unit 113. In this way, image 3801 as shown in FIG. 38 is generated, where the number of pieces of link information does not exceed k in apparatus information storing unit 3501.

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Document Number 4

Entry 4 of 4

File: USPT

Apr 30, 1996

DOCUMENT-IDENTIFIER: US 5513306 A

TITLE: Temporal event viewing and editing system

BSPR:

In the Barker apparatus, one small active display acts as an intake screen and is controlled by a left manual control disk of the control system, while a second small active display acts as an outtake screen and is controlled by a right manual control disk of the control system. Manipulating the control disks in different manners causes contiguous frames of a current segment of video information to be displayed as temporary pictorial labels on the intake and outtake screens, while a third central display provides a continuous loop display of all picture frames from just prior to the temporary intake and just after the temporary outtake pictorial labels. These same control disks are then manipulated to mark temporary pictorial labels which have been selected by the user to represent the current segment. Selected labels for the current segment are then displayed in a two row spatial array of passive displays (meaning the displays are static, not animated like the active displays) located below the active displays. The other passive displays are used to present a spatial display of the pictorial labels associated with the segments sequentially before and after the current segment. Although the passive displays are arranged in two rows, each column is limited to representing the same single sector of the video information. A label can be comprised of a single frame of video information (such that only one row of the passive display is utilized), or two frames, such as the beginning frame and the ending frame (such that both rows of the passive display are utilized). Once a label has been created, it can be replaced in the same manner in which it was created, but cannot be readily transformed.

DRPR:

FIG. 7 is a representation of the video log window of FIG. 5 overlaid by a clip browser window for storing dicons created from combinations of key frames;

DEPR:

A further adjunct of the system of the present invention is that it can be used to create one or more dicons (variously described as dynamic icons, digitally animated icons, or movie icons) out of select frames of information, which can then be used in place of static key frames within a logger row, to perform space-to-time mappings of the information being viewed. As depicted in FIG. 7, dicons can be created in a number of manners. A user could select a number of key frames, such as key frames 122, 124 and 126 (although the key frames need not be adjacent), and then performs an operation command which causes the three selected key frames to be turned into a dicon 128, such as by activating a "make dicon" command from a pull down menu or a key sequence from a keyboard. The dicon 128, a looping movie entirely comprised of the digitized images of the three key frames 122, 124 and 126, would then be automatically stored at some position on the screen, such as in a clip browser 130, for later use within the video log. This dicon 128 could then be inserted back into a row 132 of the video log as, for example, a

dynamic mnemonic of the video information within a particular key frame. Dicons could also be created out of the frames of information within the segment represented by a single key frame, or in other words, a key frame segment can be made into a dicon itself. With the implementation of dicons, additional control features would need to be added to the system, such as dialog boxes which allow the user to freeze the playback of the dicon, or to select the frame rate at which the frames of the dicon are displayed.

DEPR:

In FIG. 8, a simplified flow chart illustrating a method for displaying SDF's and proxies and for moving key frame markers is described. This flow chart is initiated, block 210, after the the user has been presented with the dialog box 60 of FIG. 3 to select the various parameters of the video log, and the video window 28, control window 30, and video log window 32 have been displayed on the screen 21 of the display. The magnifier for the top scan bar of the video log (VL) would then be set to the size of the storage capacity, or the present data storage size, of the laser disk to be sampled, block 212. As previously described, this flow chart could also be modified to allow the user to set other magnification ranges for the magnifier. The system then calculates the list of frames of information from the disc that are to be associated with the first row of the VL and adds that list to a to-be-displayed list (TBDL), block 214, which is a collection of frames that are to be made available for display as key frames within the appropriate area of a logger row.

CLPR:

28. The system as recited in claim 1, and further comprising a selector for selectively causing the display to display said information within a second area of said display.

CLPR:

29. The system as recited in claim 28 wherein said information comprises a plurality of image frames, and said computer is for further selectively sequentially causing the display to display said image frames within said second area, and wherein said selector includes a controller for regulating said sequential display of frames and a rate of display of said image frames being displayed within said second area.

CLPR:

35. The system as recited in claim 34, and further comprising a viewer interface for causing the display to display a log in said first area of said display by selecting a miniaturized view of said log in said second area of said display.

CLPR:

47. The method as recited in claim 44, wherein said step of accessing said first segment includes sampling said first segment to generate a first plurality of samples for display in said first portion of said first area and said method further includes a step of moving one of said first plurality of samples from said first portion of said first area to said second portion of said first area.

CLPR:

48. The method as recited in claim 36, wherein said step of accessing a first segment of said information includes a step of sampling said information to generate a plurality of samples of information for display within said first area.

CLPR:

80. The method as in claim 76 wherein said second plurality of samples displayed in said second display area are displayed in response to a selection of a selected sample in said first display area, said selected sample being one of said first plurality of samples.

CLPR:

89. The system as recited in claim 81, and further comprising a selector for selectively causing the display to display said information within a

second area of said display, wherein said information comprises a plurality of image frames, and wherein said computer further selectively sequentially causes the display to display said image frames within said second area, and wherein said selector includes a controller for regulating said sequential display of frames and a rate of display of said image frames being displayed within said second area.

CLPV:

a computer coupled to said display, said computer defining a first area on said display and causing the display to display a first sample of said information within said first area, said first sample representing a first segment said first segment including a plurality of frames of said display data of said information, said computer further causing the display to display a second sample of said information within said first area of said display, said second sample representing a second segment said second segment including a plurality of frames of said display data of said information, said computer further causing the display to display a third sample of said information within said first area of said display, said third sample representing a third segment of said information, and said first segment being a superset of said second segment and said third segment, said second segment being a superset of said third segment, said first sample being a first key frame, and said second sample being a second key frame, said computer further causing the display to display a plurality of samples of said information, said plurality of samples including said first sample, said second sample, and said third sample of said information, said computer causing the display to display said first sample in a first subarea with some of said plurality of displayed samples and causing the display to display said second sample and said third sample in a second subarea with some of said plurality of displayed samples, said first area including said first subarea and said second subarea, wherein said first subarea does not overlap said second subarea.

CLPV:

defining a first display area, a second display area, and a third display area, said second and third display areas not overlapping said first display area;

CLPV:

displaying said first plurality of samples in said first display area;

CLPV:

displaying said second plurality of samples in said second display area; and

CLPV:

displaying said third plurality of samples in said third display area.

CLPV:

a computer coupled to said display, said computer defining a first area on said display, said computer causing the display to display on said display a plurality of displayed samples of said information including a first sample and a second sample, said computer causing the display to display said first sample of said information with some of said plurality of displayed samples within a first subarea of said first area, said first sample representing a first segment said first segment including a plurality of frames of said display data of said information, said computer further causing the display to display said second sample of said information with some of said plurality of displayed samples within a second subarea of said first area, said second sample representing a second segment said second segment including a plurality of frames of said display data of said information, said first segment being a superset of said second segment, said first sample being a first key frame and said second sample being a second key frame, said first area including said first subarea and said second subarea, said first subarea not overlapping said second subarea.

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Document Number 3

Entry 3 of 4

File: USPT

May 20, 1997

US-PAT-NO: 5631825

DOCUMENT-IDENTIFIER: US 5631825 A

TITLE: Operator station for manufacturing process control system

DATE-ISSUED: May 20, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
van Weele; Leonardus A.	Terneuzen	N/A	N/A	NLX
de Bruijn; Ronny P.	Jansteen	N/A	N/A	NLX
Vermeire; Roger R.	Terneuzen	N/A	N/A	NLX
Zemering; Christo	Midland	MI	N/A	N/A
Lenting; Ben	Auckland	N/A	N/A	NZX

ASSIGNEE INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Dow Benelux N.V.	N/A	N/A	N/A	NLX	03

APPL-NO: 8/ 128988

DATE FILED: September 29, 1993

INT-CL: [6] G05 B 11/01

US-CL-ISSUED: 364/188; 364/146

US-CL-CURRENT: 700/83

FIELD-OF-SEARCH: 364/188-193, 364/146-147, 364/474.22-474.27, 395/155-167

REF-CITED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>1089798</u>	March 1914	Smith	N/A
<u>1108989</u>	September 1914	Henry	N/A
<u>1118597</u>	November 1914	Taggart et al.	N/A
<u>2340559</u>	February 1944	Pruyn et al.	N/A
<u>3275988</u>	September 1966	Yetter	N/A
<u>4001807</u>	January 1977	Dallimonti	N/A
<u>4115848</u>	September 1978	Kogure et al.	N/A
<u>4303973</u>	December 1981	Williamson, Jr. et al.	N/A
<u>4396977</u>	August 1983	Slater et al.	N/A
<u>4413314</u>	November 1983	Slater et al.	N/A
<u>4586144</u>	April 1986	Fukumoto	N/A
<u>4628470</u>	December 1986	Baumann	N/A
<u>4675147</u>	June 1987	Schaefer et al.	N/A
<u>4683549</u>	July 1987	Takaki	N/A
<u>4727473</u>	February 1988	Anderson et al.	N/A
<u>4752889</u>	June 1988	Rappaport et al.	N/A
<u>4792888</u>	December 1988	Agarwal et al.	N/A
<u>4803039</u>	February 1989	Impink, Jr. et al.	N/A
<u>4815014</u>	March 1989	Lipner et al.	N/A
<u>5168441</u>	December 1992	Onarheim et al.	364/188

ART-UNIT: 244

PRIMARY-EXAMINER: Trammell; James P.

ATTY-AGENT-FIRM: Brooks & Kushman

ABSTRACT:

An operator station for a manufacturing process control system including a network of at least one dedicated process control computer for monitoring and controlling SECTIONS of the manufacturing process wherein each SECTION includes one or more SEQUENCES of the manufacturing process, the operator station includes a processor, a communication link to the process control communication system, a display including a SECTIONS window providing information relating to at least one of the SECTIONS monitored by the operating station and a SEQUENCE window providing information relating to one or more SEQUENCES monitored by the operator station, a data input device for selecting a SECTION from which information is to be displayed. The operator station may further include a flow sheet display window which includes a graphic depiction of a portion of the process, and a trend display window which includes current and historical information in graphic form for selected process control variables.

16 Claims, 34 Drawing figures

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Document Number 4

Entry 4 of 4

File: USPT

Apr 30, 1996

US-PAT-NO: 5513306

DOCUMENT-IDENTIFIER: US 5513306 A

TITLE: Temporal event viewing and editing system

DATE-ISSUED: April 30, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Mills; Michael	Cupertino	CA	N/A	N/A
Cohen; Jonathan	San Francisco	CA	N/A	N/A

ASSIGNEE INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Apple Computer, Inc.	Cupertino	CA	N/A	N/A	02

APPL-NO: 8/ 481194

DATE FILED: June 7, 1995

PARENT-CASE:

This is a continuation of application Ser. No. 08/225,496, filed Apr. 11, 1994, abandoned, which is a continuation of application Ser. No. 07/564,914, filed Aug. 9, 1990, abandoned.

INT-CL: [6] G06 T 1/00

US-CL-ISSUED: 395/148; 395/156, 395/161, 395/600, 395/160, 395/152

US-CL-CURRENT: 707/530; 345/352, 345/356, 345/473

FIELD-OF-SEARCH: 395/148, 395/152, 395/154, 395/155, 395/157, 395/159, 395/160, 395/161, 395/600, 345/121-122, 360/13, 360/14.1, 360/14.3, 369/27-28, 369/69, 369/83-84, 434/47, 348/232, 348/552, 348/559, 348/563-565

REF-CITED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>4558438</u>	December 1985	Jones et al.	367/71
<u>4751674</u>	June 1988	Aoyagi et al.	364/900
<u>4763186</u>	August 1988	Belmares-Sarabia et al.	358/22
<u>4775935</u>	October 1988	Yourick	364/401
<u>4821211</u>	April 1989	Torres	364/521
<u>4914586</u>	April 1990	Swinehart et al.	364/200
<u>4943866</u>	July 1990	Barker et al.	358/335
<u>4951233</u>	August 1990	Fujiwara et al.	364/523
<u>4970664</u>	November 1990	Kaiser et al.	364/521
<u>5023851</u>	June 1991	Murray et al.	368/41
<u>5046027</u>	September 1991	Taaffe et al.	364/521
<u>5093907</u>	March 1992	Hwong et al.	395/152
<u>5101364</u>	March 1992	Davenport et al.	395/152
<u>5119476</u>	June 1992	Texier	395/157
<u>5157511</u>	October 1992	Kawai et al.	358/335

ART-UNIT: 242

PRIMARY-EXAMINER: Zimmerman; Mark K.

ASSISTANT-EXAMINER: Feild; Joseph H.

ATTY-AGENT-FIRM: Blakely, Sokoloff, Taylor & Zafman

ABSTRACT:

A system for displaying a sequential stream of information on a single display. The system includes a computer for defining an first area on the display and for displaying a first sample of the information within the first area. The first sample represents a first segment of the information. The computer further is for displaying a second sample of the information within the first area of the display. The second sample represents a second segment of the information. The computer is further for displaying a third sample of the information within the first area of the display. The third sample represents a third segment of the information. The first segment includes the second segment and the third segment.

91 Claims, 12 Drawing figures

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116 and 122

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USPT	17 adj5 18	16577	L21
USPT	17 adj5 19	540	L20
USPT	118 and 13	1	L19
USPT	117 and 114	11	L18
USPT	112 and 116	36	L17
USPT	browser	1517	L16
USPT	13 and 114	133	L15
USPT	110 same 111	551	L14
USPT	13 and 112	477	L13
USPT	110 and 111	1690	L12
USPT	17 same 18	50481	L11
USPT	17 same 19	4370	L10
USPT	temporary	83362	L9
USPT	area	1060348	L8
USPT	display	279510	L7
USPT	13 or 14	27807	L6
USPT	(707/\$)![CCLS]	6931	L5

USPT	(707/\$)![CCLS]	6931	<u>L5</u>
USPT	((707/\$)![CCLS])![CCLS]	6931	<u>L4</u>
USPT	(345/\$)![CCLS]	21981	<u>L3</u>
USPT	(345.\$)![CCLS]	0	<u>L2</u>
USPT	(345)![CCLS]	0	<u>L1</u>

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Database: [US Patents Full-Text Database](#)

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116 and 122

Search History

<u>DB Name</u>	<u>Query</u>	<u>Hit Count</u>	<u>Set Name</u>
USPT	116 and 122	4	L23
USPT	120 and 121	121	L22
USPT	17 adj5 18	16577	L21
USPT	17 adj5 19	540	L20
USPT	118 and 13	1	L19
USPT	117 and 114	11	L18
USPT	112 and 116	36	L17
USPT	browser	1517	L16
USPT	13 and 114	133	L15
USPT	110 same 111	551	L14
USPT	13 and 112	477	L13
USPT	110 and 111	1690	L12
USPT	17 same 18	50481	L11
USPT	17 same 19	4370	L10
USPT	temporary	83362	L9
USPT	area	1060348	L8
USPT	display	279510	L7
USPT	13 or 14	27807	L6
USPT	(707/\$)![CCLS]	6931	L5

USPT	(707/\$)![CCLS]	6931	<u>L5</u>
USPT	((707/\$)![CCLS])![CCLS]	6931	<u>L4</u>
USPT	(345/\$)![CCLS]	21981	<u>L3</u>
USPT	(345.\$)![CCLS]	0	<u>L2</u>
USPT	(345)![CCLS]	0	<u>L1</u>

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l3 or l4

27807

Database: US Patents Full-Text Database

display

Refine Search:**Search History**

<u>DB Name</u>	<u>Query</u>	<u>Hit Count</u>	<u>Set Name</u>
USPT	l3 or l4	27807	<u>L6</u>
USPT	(707/\$)![CCLS]	6931	<u>L5</u>
USPT	((707/\$)![CCLS])![CCLS]	6931	<u>L4</u>
USPT	(345/\$)![CCLS]	21981	<u>L3</u>
USPT	(345.\$)![CCLS]	0	<u>L2</u>
USPT	(345)![CCLS]	0	<u>L1</u>

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116 and 122

Search History

<u>DB Name</u>	<u>Query</u>	<u>Hit Count</u>	<u>Set Name</u>
USPT	116 and 122	4	L23
USPT	120 and 121	121	L22
USPT	17 adj5 18	16577	L21
USPT	17 adj5 19	540	L20
USPT	118 and 13	1	L19
USPT	117 and 114	11	L18
USPT	112 and 116	36	L17
USPT	browser	1517	L16
USPT	13 and 114	133	L15
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USPT	(707/\$)![CCLS]	6931	L5

USPT	(707/\$)![CCLS]	6931	<u>L5</u>
USPT	((707/\$)![CCLS])![CCLS]	6931	<u>L4</u>
USPT	(345/\$)![CCLS]	21981	<u>L3</u>
USPT	(345.\$)![CCLS]	0	<u>L2</u>
USPT	(345)![CCLS]	0	<u>L1</u>